

**ANNEXES TO THE  
PRELIMINARY EXAMINATION REPORT  
(ARTICLE 34 AMENDMENTS)**

Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**REQUEST FOR SUBSTITUTION OF REPLACEMENT SHEETS**

Please substitute the attached (6) replacement sheets 39 - 44 of the claims containing the Article 34 Amendments for sheets 39-44 of the claims in the enclosed copy of the as-filed PCT application. It is respectfully requested that the claims in the replacement sheets be examined during examination of the patent application. Claims 1-26 are currently pending.

Respectfully submitted,

FINNEGAN, HENDERSON, FARBOW,  
GARRETT & DINNER, L.L.P.

Dated: December 22, 2004

By: 

Ernest F. Chapman  
Reg. No. 25,961

Enclosures  
EFC/FPD/rac

CLAIMS

5

1. The use of a phosphorus containing ligand as a ligand for a metathesis catalyst in a catalysed metathesis reaction wherein the phosphorus containing ligand is a heterocyclic organic compound with a ligating phosphorus atom as an atom in the heterocyclic ring structure of the heterocyclic organic compound.

10

2. The use of a phosphorus containing ligand in the preparation of a catalyst containing the ligand, which catalyst is for use in a metathesis reaction, wherein the phosphorus containing ligand is a heterocyclic organic compound with a ligating phosphorus atom as an atom in the heterocyclic ring structure of the heterocyclic organic compound.

15

3. The use of either one of claims 1 or 2 wherein the metathesis reaction is a homogenous metathesis reaction.

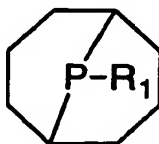
20

4. The use of any one of the preceding claims wherein the phosphorus containing ligand comprises a phosphine ligand.

25

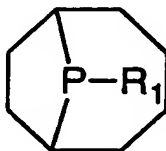
5. The use of claim 4 wherein the ligating phosphorus atom is also bound to a further moiety which is an organyl and which is not part of the heterocyclic ring structure.

6. The use of any one of claims 1 to 5 wherein the heterocyclic organic compound comprises a bicyclic organic compound.
7. The use of any one of claims 1 to 4 wherein the phosphorus containing ligand is a 9-phosphabicyclo[3.3.1]nonane of formula 2a or a 9-phosphabicyclo[4.2.1] nonane of formula 2b or mixtures thereof:



..... (2a)

10



..... (2b)

wherein R<sub>1</sub> is H or an organyl.

15

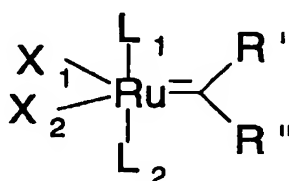
8. The use of claim 7 wherein R<sub>1</sub> is -C<sub>20</sub>H<sub>41</sub>.
9. The use of claim 7 wherein R<sub>1</sub> is cyclohexyl.
10. The use of any one of the preceding claims wherein the metathesis reaction is a reaction selected from the group

consisting of cross metathesis, ring-opening metathesis polymerisation and ring-closing metathesis.

11. A metathesis catalyst which includes a phosphorus containing ligand which is a heterocyclic organic compound with a ligating phosphorus atom as an atom in the heterocyclic ring structure of the heterocyclic organic compound.

12. A compound of formula 3:

10



.....(3)

wherein

- 15  $\text{L}_1$  is a neutral electron donor ligand;  
 $\text{L}_2$  is a phosphorous containing ligand in the form of a heterocyclic organic compound with a ligating phosphorus atom as an atom in the heterocyclic ring structure of the heterocyclic organic compound;  
20  $\text{X}_1$  and  $\text{X}_2$  are independently selected from an anionic ligand; and  
 $\text{R}'$  and  $\text{R}''$  are independently selected from H and an organyl.

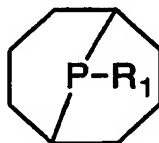
13. The compound of claim 12 which is a homogeneous metathesis catalyst.

14. The compound of either one of claims 12 or 13 wherein  $L_1$  is the same as  $L_2$ .

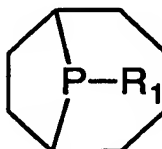
15. The compound of any one of claims 12 to 14 wherein the phosphorus  
5 containing ligand of  $L_2$  comprises a phosphine ligand.

16. The compound of claim 15 wherein  $L_2$  is a 9-phosphabicyclo[3.3.1]nonane, of formula 2a, or a 9-phosphabicyclo[4.2.1]nonane of formula 2b or mixtures thereof:

10



..... (2a)



15

..... (2b)

wherein  $R_1$  is H or an organyl.

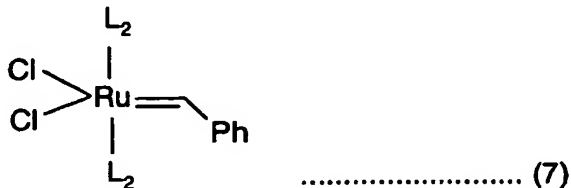
17. The compound of claim 16 wherein  $R_1$  is  $-C_{20}H_{41}$ .

20

18. The compound of claim 16 wherein  $R_1$  is cyclohexyl.

19. The compound of any one of claims 12 to 18 wherein  $X_1$  and  $X_2$  are each independently selected from halide.

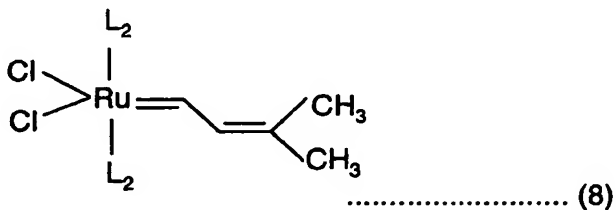
20. The compound of claim 12 which is a compound of formula 7:



5

wherein  $L_2$  is the same or different and is as defined in claim 12.

21. The compound of claim 12 which is a compound of formula 8



wherein  $L_2$  is the same or different and is as defined in claim 12.

15

22. The compound of either one of claims 20 or 21 wherein  $L_2$  is as defined in claim 16.

23. The use of a compound of any one of claims 12 to 21 in a metathesis reaction.

24. The use of claim 23 wherein the metathesis reaction is a homogeneous  
5 metathesis reaction selected from the group consisting of cross metathesis ring-opening metathesis polymerisation and ring-closing metathesis.

25. A catalysed metathesis reaction wherein at least one olefinic  
10 compound is subjected to metathesis in the presence of a compound of claim 12.

26. The reaction of claim 25 wherein the compound of claim 12 is  
15 formed *in situ*.

27. A metathesis product formed by the reaction of either one of  
claims 25 or 26.